

“Post-doc in biological puncture mechanics at the University of Illinois, Urbana-Champaign”

A postdoctoral researcher position is available in the Anderson lab in the Department of Evolution, Ecology and Behavior at the University of Illinois, Urbana-Champaign. The Anderson lab seeks a post-doctoral scholar with a strong interest in some combination of the following: biomechanics, fracture mechanics, impact dynamics, mathematical modeling and/or evolutionary analyses. The applicant will work alongside the PI and lab members to assess how physical principles underlying functional performance influence evolutionary processes. The focus of this specific project is how energy flow through biological puncture events impacts the evolution of these systems (e.g. teeth, spines and stingers).

The research goals are to 1) execute a comprehensive series of controlled puncture experiments at variable dynamic scales, 2) establish a set of energy balance equations that model how shape, material and kinematic variables influence the energetics of puncture, and 3) use these models to examine the evolution of puncture systems across several lineages.

Requirements:

- Ph. D. in biology or engineering
- Publication record in recognized journals
- Some experience in a combination of the following: comparative biomechanics, fracture mechanics (experimental or modeling), impact dynamics, and/or comparative evolutionary analyses.

Expectations for the ideal candidate:

- Willingness to apply engineering theory and techniques (particularly from fracture and impact mechanics) to biological puncture systems.
- Ability to perform quasi-independent biomechanical experiments with creativity and motivation.
- Interest in integrating biomechanical data with mathematical modeling and phylogenetic comparative analyses.
- Active engagement in mentoring and collaborating with students (both undergraduate and graduate level) in the School of Integrative Biology at the University of Illinois.
- Willingness to collaborate with various engineering labs both at the University of Illinois' College of Engineering and outside labs actively collaborating with the Anderson group.
- Commitment to disseminating scientific results both at international meetings and in recognized journals.

The start date for this position is negotiable. Evaluation of applications will begin immediately and priority will be given to applications that are complete by March 1st. The position will remain open until a suitable candidate is found. Initial support is for two years with additional time contingent upon performance. Application materials should be emailed to Dr. Phil Anderson (andersps@illinois.edu) with the subject line "Puncture Postdoc."

Applications must include:

- Cover letter describing specific research interests, how previous research provides a strong background for this work and how you think this project relates to your career goals (2 pages max)
- C.V.
- The names and emails of 3 references as well as their relation to the applicant.

The Anderson lab is an evolutionary biomechanics lab focused on examining questions of how physical and mechanical principles influence evolution. The lab is equipped with an Instron materials testing device, table-top gas gun for impact experiments, a high-speed video camera capable of filming 24000 fps at full resolution (2 million fps maximum), and other resources. The lab also has active collaborations with several engineers in the UIUC College of Engineering, offering lab members access to further resources.

In addition to rigorous scientific training, the Anderson lab is committed to extensive professional development for postdoctoral associates. This includes involving the postdoc in graduate reading groups / courses each semester, and providing them opportunities to develop skills in instruction through Illinois' Center for Innovation in Teaching and Learning (citl.illinois.edu). They will also have opportunities to develop their own mentoring skills by advising undergraduate students in the IBio program on independent projects. In addition to these opportunities through the lab, the campus-wide Program in Ecology, Evolution and Conservation Biology at Illinois has a "Post-docs in PEEC" community that provides both weekly seminars with invited speakers, as well as workshops targeting issues of relevance to post-docs. Finally, the Postdoc Affairs Office (www.grad.illinois.edu/postdocs) also offers mentoring workshops on a variety of topics including: Funding - Applying for Grants, Fellowships and Awards; Becoming Faculty - Strategies for the Academic Job Search; Traditional and Alternative Careers in Biology; and Human dimensions and ethics in biology.

The University of Illinois at Urbana-Champaign, located 120 miles south of Chicago, offers a variety of cultural opportunities that showcase the area's diverse ethnic population, superb public and private schools, quality public transportation, and a rapidly expanding community of high-tech businesses.

The UIUC College of Liberal Arts and Sciences is a world leader in research, teaching, and public engagement. Faculty in the College create knowledge, address critical societal needs through the transfer and application of knowledge, and prepare students for lives of impact in the state, nation, and globally. To meet these objectives, the College embraces and values diversity and difference through hiring faculty candidates who can contribute through their research, teaching, and/or service to the diversity and excellence of the Illinois community.

The University of Illinois is an Equal Opportunity, Affirmative Action employer that recruits and hires qualified candidates without regard to race, color, religion, sex, sexual orientation, gender identity, age, national origin, disability or veteran status. For more information, visit <http://go.illinois.edu/EEO>.

The University of Illinois conducts criminal background checks on all job candidates upon acceptance of a contingent offer. The University of Illinois System requires candidates selected for hire to disclose any documented finding of sexual misconduct or sexual harassment and to authorize inquiries to current and former employers regarding findings of sexual misconduct or sexual harassment. For more information, visit "[Policy on Consideration of Sexual Misconduct in Prior Employment](#)."

As a qualifying federal contractor, the University of Illinois System [uses E-Verify](#) to verify [employment eligibility](#). The University of Illinois must also comply with applicable federal export control laws and regulations and, as such, reserves the right to employ restricted party screening procedures for applicants.